Richmond Refinery LPS Bulletin – Reliability

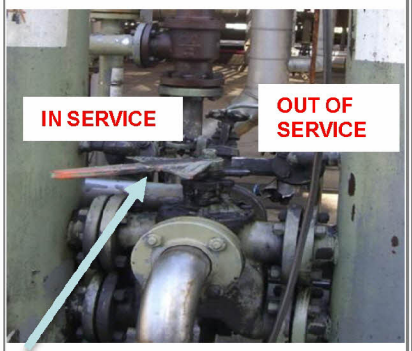
Compressor Shutdown Due To Lube Oil Filter Swap

IMPACT ID #: 11241

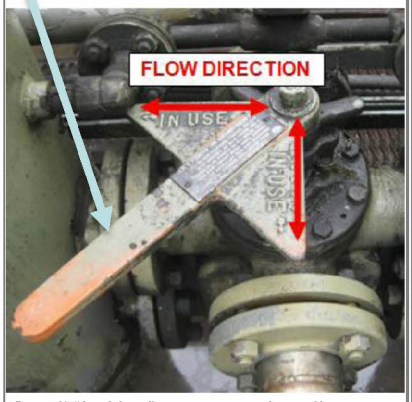
Location:
Hydro Division, H2 Boosters (9-Plant)

Contact Information:
Jason Waldrop
(510)242-1331
swal@chevron.com

Lube Oil Filters and 3-way Valve



Handle for Switching Filters



Small "In Use" arrows on handle show flow orientation.

Arrow shape of handle was misinterpreted as indicating Out of Service filter as In Service filter.

Incident Description:

On 4/1/2011, mechanics were walking past the K-960 (H2 Booster compressor) and the K-961A (lube oil filter vessel) on their way to begin repairs on another compressor when they noticed a small oil drip at the filter vessel. They notified the area operator to assess and isolate the oil leak. The operators incorrectly determined that the arrow shape of the three-way valve handle indicated the K-961A filter was in service instead of recognizing that the small "In use" arrows on the handle correctly indicated the filter was not in service. As a result, the operators inadvertently put the lube oil filter into service, causing the leaking o-ring to blow out and shut down K-960 H2 Booster compressor on low lube oil pressure.

Shortly thereafter, the operators recognized their mistake and restarted the K-960 immediately with minimal impact to plant operation.

Investigation Findings:

1) Individuals did not properly understand the valve indicator and which filter the indicator applied to.
2) Valve design may lead to misinterpretation if not carefully checked.
3) The job aid did not clarify valve flow orientation.
4) The valve handle was covered in oil and grime making it difficult to read.

Lessons Learned / Business Practices:

1) Avoiding incidents requires careful attention to details such as valve indicators.

What Worked Well:

1) Quick recognition of the error avoided process and environmental impacts.
2) Proactive behavior was exhibited to point out and isolate the small leak.

Recommendations:

1) Update the booster compressor job aid to clarify lube oil filter valve flow indications.
2) Emphasize the importance of using job aids where available.
3) Emphasize the importance of good housekeeping to ensure valve indicators are visible to help avoid losses.

Every task, the right way, every time